

REMARKS

Claims 1-40 are all the claims pending in the application.

I. Abstract

The Examiner has requested that the Abstract be amended to include a statement that the memory device may include data indicative of the history of the ink cartridge which may be utilized to control a reproduction of the ink cartridge. Applicant has amended the Abstract to include such a statement.

II. Claim Rejections under 35 U.S.C. § 103

A. Claim 8

Claim 8 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bullock et al. (U.S. Patent No. 5,699,091) in view of Tadokoro (U.S. Patent No. 5,550,956). To establish a *prima facie* case of obviousness, the Examiner must provide a convincing line of reasoning (by a preponderance of evidence) of why one skilled in the art would have found the combination of the teachings of the cited references obvious. See MPEP § 2143.01. Applicant respectfully submits that the references cited above by the Examiner fail to provide any suggestion or motivation to combine the teachings of the references.

Specifically, Applicant submits that the references fail to provide any suggestion or motivation for storing data indicative of the history of the ink cartridge of Tadokoro on the memory device of the cartridge of Bullock. The Examiner acknowledges that "Bullock et al. fails to disclose storing data indicative of the history of the ink cartridge." Thus, Bullock

admittedly does not teach the desire or suggestion to have such data stored on the memory device of the cartridge. The Examiner then relies on Tadokoro to teach “storing history information of a consumable such as an ink cartridge in a printer.” (emphasis added). Again, the Examiner acknowledges that Tadokoro does not teach the desire or suggestion to have such data stored on the memory device of the cartridge. Nevertheless, the Examiner, in a conclusory manner, alleges that the motivation for combining the teachings of Bullock and Tadokoro “would have been to shorten the operation time of maintenance and inspection as taught by column 1, lines 20-28 of Tadokoro.” However, col. 1:20-28 of Tadokoro teaches that in order “[t]o shorten the operation time of maintenance and inspection, it is advantageous to use the history information of the color printer.” In other words, Tadokoro teaches to use the history of the printer and store such history information on the memory device of the printer, and not the history information of the ink cartridge. Therefore, Tadokoro fails to provide any motivation to store history information of the ink cartridge on the memory device of the ink cartridge.

However, only Applicant’s disclosure teaches the value of storing the history information of the ink cartridge on the memory device of the ink cartridge. As Applicant explains, when an ink cartridge mounted on and used at least partially by a first printer is detached and thereafter mounted on a different, second printer, the ink cartridge can be effectively and efficiently used when a memory device of the ink cartridge contains data indicative of data of the history of the ink cartridge including a past ink environment in which the ink cartridge was used. Neither reference recognizes this advantageous feature, and thus no motivation to combine the teachings of the two references exists.

Accordingly, Applicant respectfully requests that the rejection of claim 8 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

B. Claims 13 and 24

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bullock et al. in view of Koitabashi et al. (U.S. Patent No. 6,000,778). Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Bullock et al. in view of Childers et al. (U.S. Patent No. 6,126,265). The cited references fail to teach or suggest storing data representative of the minimum ink amount and residual ink in the ink cartridge. Bullock teaches that the residual ink amount is estimated by the printer microprocessor 86 and stored within the printer. See Bullock, col. 7:12-67. Both Koitabashi and Childers fail to cure the deficient teaching of Bullock. Furthermore, it would not have been obvious to one skilled in the art to store the residual value on the memory device of the ink cartridge because none of the cited references consider the reuse of the ink cartridges in different printers, and therefore, there would be no motivation to store such information on with the ink cartridge. However, Applicant has realized the importance of do so.

A minimal ink amount differs depending on the type of an ink cartridge, the configuration of an ink cartridge, or the like. The minimal ink amount may differ on a cartridge-by-cartridge basis even if the cartridges are of the same type and configuration.

For example, a minimal ink amount of an ink cartridge employing an ink absorbing member is generally larger than a minimal ink amount of an ink cartridge employing a valve mechanism. That is, some type of an ink cartridge employing an ink absorbing member has a

minimal ink amount of, for example, 2 to 3 %, whereas some type of an ink cartridge employing a valve mechanism has a minimal ink amount of, for example, 1 %. Also, a recommended minimal ink amount would differ depending on supplier who manufactures and supplies ink cartridges.

If a printer memory, not an ink cartridge memory, stores data relating to or representative of a minimal ink amount, it is difficult or impossible to accommodate such differences in minimal ink amount. That is, storing data relating to or representative of a minimal ink amount in an ink cartridge memory device makes it possible to set a minimal ink, amount on a cartridge-by-cartridge basis, thereby enabling efficient and effective use of ink contained in an ink cartridge.

Since the cited references fail to recognize the above described feature, it would not have been obvious to modify the Bullock system in a manner to store the residual ink amount on the ink cartridge. Therefore, Applicant respectfully requests that the rejection of claims 13 and 24 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

C. Claims 25 and 26

Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bullock et al. in view of Childers et al., as applied to claim 24, and further in view of Kobayashi et al. (EP 841173). Since claims 25 and 26 depend from claim 24 and since Kobayashi does not cure the deficient teachings of Bullock and Childers with respect to claim 24, Applicant submits that claims 25 and 26 are patentable at least by virtue of their dependency from claim 24.

Therefore, Applicant respectfully requests that the rejection of claims 25 and 26 under 35 U.S.C. § 103(a) be reconsidered and withdrawn.

III. Double Patenting

Claims 1-11, 13, 14, 16-20 and 24 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 19 of U.S. Patent No. 6,361,138 in view of Bullock et al. Applicant submits herewith a terminal disclaimer which disclaims the terminal part of any patent issuing from the present application. However, the submission of the terminal disclaimer is not intended as an admission that the claims of the patent application applied by the Examiner are substantively sufficient to support the Examiner's rejection. Therefore, Applicant respectfully requests that the double patenting rejection of claims 1-11, 13-14, 16-20 and 24 be reconsidered and withdrawn.

IV. Allowable Subject Matter

Claims 27-34 and 36-40 stand allowed. Claims 1-7, 9-11, 14, 16-20 would be allowable upon acceptance of a terminal disclaimer which properly overcomes the applied double patenting rejection. Since Applicant has submitted herewith a terminal disclaimer, Applicant submits that claims 1-7, 9-11, 14, 16-20 are now allowable.

Claims 12, 15, 21-23 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Since claims 12, 15, 21-23 and 35 depend from claims 1 and 14, and since 1 and 14 are now allowable based on the filing of the terminal

AMENDMENT UNDER 37 C.F.R. § 1.116
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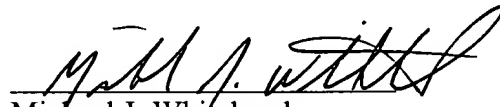
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disclaims, Applicant submits that claims 12, 15, 21-23 and 35 are now allowable. Thus, Applicant respectfully requests that the objection of claims 12, 15, 21-23 and 35 be reconsidered and withdrawn.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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